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David P. Little

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Since China's provocative military exercises across the Taiwan straits in March 1996, the strait remains calm and little has changed diplomatically; but the balance of power in the region is changing. The remarkable rate in which China has modernized its military in the last decade has left many to question their intentions and whether China's modernization is based on a change in maritime strategy. Many analysts believe if China truly intends to expand their regional control to the 'second island chain', they will have to build or acquire aircraft carriers to achieve this capability. Due to the technological challenges of building and maintaining aircraft carriers, China appears to be gaining a military capability to control the China Seas through non-conventional means. Although it is yet to be determined whether China has the capacity to piece together their modernized forces to achieve power projection beyond their costal waters, it is critical that U.S. maritime strategists recognize China is gaining the pieces without obtaining an aircraft carrier.

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Air War beyond the First Island Chain:

Implications of China's Military Modernization for U.S. Maritime Strategy

by

David Little
LCDR USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

David Little
23 October 2006

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Abstract

Since China's provocative military exercises across the Taiwan straits in March 1996, the strait remains calm and little has changed diplomatically; but the balance of power in the region is changing. The remarkable rate in which China has modernized its military in the last decade has left many to question their intentions and whether China's modernization is based on a change in maritime strategy. Many analysts believe if China truly intends to expand their regional control to the 'second island chain', they will have to build or acquire aircraft carriers to achieve this capability. Due to the technological challenges of building and maintaining aircraft carriers, China appears to be gaining a military capability to control the China Seas through non-conventional means. Although it is yet to be determined whether China has the capacity to piece together their modernized forces to achieve power projection beyond their costal waters, it is critical that U.S. maritime strategists recognize China is gaining the pieces without obtaining an aircraft carrier.

Introduction

The United States' response to 1996 Taiwan Strait provocation showed the Chinese the United States' resolve for preventing military aggression to resolve the Taiwan-China issue. The U.S. involvement also highlighted the military deficiencies and vast gap of power between the United States and the Chinese Peoples Liberation Army (PLA). China's aggressive military modernization is altering the balance of power in the strait and China Seas. It appears that China's military build up has remained focused on ensuring the Taiwan issue is resolved on Chinese terms. Whether China is developing a military designed to protect their sovereignty or to expand their regional control is unknown and a topic of debate among many strategists. What is important to understand is the capabilities China's military is developing and how this will alter stability in the region. Does China's military modernization simply allow China to defend against military aggression, or will this modernization allow them to become a force capable of expanding regional control and securing contested interests in the China Seas?

Since 1996, Chinese attention has been focused on the maritime power of the United States and developing a military power capable of influencing and protecting their interests in the China Seas. The power of the U.S. carriers has been a focus of attention for the Chinese, but their ability to develop an aircraft carrier comparable to the U.S. has yet to be realized. China has been pursuing other methods to expand their area of influence in the region. By analyzing China's military modernization and evolving capabilities, their ability to influence the region can be assessed more clearly. This should also provide the U.S. the ability to better develop a maritime strategy to counter the growing capabilities of China's military and adapt to China's growing military power.

China's Maritime Strategy

"China historically has viewed the sea as an invasion route by foreign aggressors, rather than as a medium for achieving national goals."[1] "This attitude appears to have changed during the past decade and a half" as China has become more focused on off shore resources and their ability to influence the Taiwan issue.[2]

According to the 2006 Annual report to Congress: Military Power of the People's Republic of China:

> "Since the early- to mid-1990s, China's military modernization has focused on expanding its options for Taiwan contingencies, including deterring or countering third-party intervention. Evidence also suggests that China is developing capabilities that will enable it to project power beyond Taiwan. As China's capabilities grow, its leaders could consider using force or threats to achieve their strategic objectives." [3]

Based on China's military modernization capabilities, many analysts believe China's motivations are founded on their desire to ensure the Taiwan issue is resolved according to China's interest. Additionally, analysts believe that if China was motivated by its desire for expanding a broader "sea control" strategy, China would be in the process of developing large deck aircraft carriers.[4] The question U.S. strategist should consider is can China shift to broader "sea control" without the development of large deck aircraft carriers.

1995-1996 Taiwan Crisis

One of the greatest influences on China's rapid military modernization in the last decade is believed to be a direct result of being upstaged by the U.S. in the 1995 – 1996

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[1] Bernard D. Cole, "China's Maritime Strategy." Hampton Roads International Security Quarterly (30 Jun 2002): 136.
[2] Cole, 136.
[3] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. (Washington, D.C., 2006): 7.
[4] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China: 31.

Taiwan Strait Crisis. In March 1996, the United States and the world became concerned as the tensions across the Taiwan straits loomed of armed conflict. The impetus of the Chinese provocative military posture was founded on the Chinese leadership's view that the United States was undermining China's "one-China" ambition and encouraging Taiwan's movement towards independence.[5] President Clinton's approval for Taiwanese President Lee Teng-hui to visit to the United States in May of 1995 was viewed by China as "a serious challenge to China's opposition to Taiwan's independence movement."[6]

China's provocative military posture included a series of exercises and missile tests in the vicinity of Taiwan that started in July 1995 and continued until March 1996. China's military posturing and exercises gave great concern to the United States and Taiwan. Unlike previous training exercises, these exercises were aimed at sending a clear message to Taiwan and the rest of the world that China was willing and ready to pursue military action to prevent Taiwan from pursuing independence.[7] The magnitude of the military exercises and the redeployment of forces, abnormal for Chinese exercises, were alarming. These large exercises consisted of aerial bombardment, amphibious landings, over forty naval vessels, some two hundred and sixty aircraft and over 150,000 troops. Most threatening were missile tests that were targeted less than 50 miles from Taiwan's busiest sea ports.[8]

Beijing's actions were intended to shape Taipei's and the world's expectations of potential Chinese reactions. These actions were as much psychological as they were

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[5] Scobell, Andrew. "Show of Force: The PLA and the 1995-1996 Taiwan Strait Crisis." Jan 1999. 03 Oct 2006 <http://aparc.stanford.edu/publications/show_of_force_the_pla_and_the_19951996_taiwan_strait_crisis/ >.
[6] Ross, Robert S. "The 1995-1996 Taiwan Strait Confrontations: Coercion, Credibility, and the Use of Force." International Security 25(Fall 2000): 4.
[7] Ross, 1.
[8] Scobell, 5.

political and military when considering the increasing military power of China.[9] The military posturing of the Peoples Republic of China (PRC) alarmed the world and provided serious indicators the Chinese were willing to resolve the disputed sovereignty of Taiwan by military action. Scholars have written that it was China's intent to send a clear message to the United States that the "Taiwan issue was a 'question of war and peace' and that the United States 'could be dragged into military conflict'" over the Taiwan issue.[10]

The United States responded to the escalating tensions and Chinese posturing with the deployment of two United States carrier strike groups. Both the USS Independence and USS Nimitz Carrier Strike Groups (CSG) began operations in the South China Sea to observe the situation and as a means of demonstrating United States concern for the tensions and resolve for peaceful resolution. Significantly, the deployment of the American warships to the South China Sea marked the first time American warships had patrolled the straits since 1976."[11]

The Chinese exercise concluded with neither a Taiwanese declaration of independence or military hostilities from China. "The confrontation continues to influence Chinese and American security policies and the bilateral relationships among all three of the actors in U.S.-China-Taiwan relations."[12] Without a doubt, an important result of the 1995-1996 Taiwan straits crisis was the demonstration of U.S. resolve for defending Taiwan against Chinese military aggression. Another and more significant

[9] Johathan D. Pollack, "China's Taiwan Strategy: A Point of no Return?" The China Journal, 36. (July 1996): 113.
[10] Ross, 6.
[11] "Military." Taiwan Strait: 21 Jul 1995 to 23 March 1996. 27 Apr 2005. ClobalSecurity.org. 27 Sep 2006 <http://www.globalsecurity.org/military/ops/taiwan_strait.htm>.
[12] Ross, 1.

outcome of U.S. involvement in the Taiwan Strait was the upstaging of the PLA by the military power of the U.S. which demonstrated the huge gap in military technology and power between China and the U.S.[13]

Since the 1995-1996 Taiwan straits crisis, the U.S. has repeatedly deployed CSGs to the South China Sea in reaction to China-Taiwan tensions. CSGs were deployed in August 1999 after Lee Teng Hui announced the "two state theory" and again in August 2001 in response to Beijing's war games simulating the attack of Taiwan.[14] China's maritime strategists have been reminded of their military limitations and military modernization deficiencies every time the U.S. has deployed CSGs to the South China Sea which certainly has fueled their desire for building a modern navy and a military capable of projecting power beyond the shores of China.[15]

China's Military Modernization Trends and Goals

"We should draw on the experiences in new military changes of the world and seize the opportunities to achieve leapfrog development in national defense and army modernization."

- President Hu Jintao

"Several aspects of China's military development have surprised U.S. analysts, including the pace and scope...."

- DOD Report to Congress, 2006

At the time of the 1995-1996 Taiwan crisis, the U.S. Department of Defense assessment of China's Peoples Liberation Army (PLA) was "across the board to be twenty years out of date" compared to that of the U.S. military in capability and

[13] "China's New Great Leap Forward - High Technology and Military Power in the Next Half-Century."Hudson Institute. (2005): 10.
[14] Buszynski, Leszek. "ASEAN, the Declaration on Conduct, and the South China Sea." Contemporary Southeast Asia 25, No. 3(2003): 353.
[15] Cole, 136.

technology, a view that was shared by most analysts.[16] Since the Taiwan Strait crisis, China's defense industry has undergone major reforms. Within three years following the 1996 Taiwan Strait crisis, China had abandoned the failed Soviet Union military industry, "in which military facilities operated by administrative decree in isolation from the rest of the economy," and has moved towards the U.S. model of civilian defense industry where companies compete on the basis of price and performance.[17] China's driving force has remained focused on the Taiwan Straits issue. In 2003, Robert Ackerman wrote that one of China's primary military modernization program focuses is "to build specific capabilities relevant to potential conflict over Taiwan."[18] And most recent assessments remain the same as illustrated in the 2006 U.S. Department of Defense Annual Report to Congress which again assessed that China's military buildup continues to be focused on preventing Taiwan independence, compelling the island to negotiate on Beijing's terms and to deter third-party intervention in any cross-strait crisis.[19] The report also states that China's military has specifically invested in research and development of weapons designed for attacking aircraft carriers.[20] Another recent assessment by Richard D. Fisher, Vice President of the International Assessment and Strategy Center, indicates that China has in the last couple of years shifted military procurement from aerospace to naval

[16] China's New Great Leap Forward - High Technology and Military Power in the Next Half-Century, 10.
[17] China's New Great Leap Forward - High Technology and Military Power in the Next Half-Century, 12.
[18] Ackerman, Robert K. "Signal- AFCEA's International Journal." Chinese military modernization aims for regional projection. Oct 2003. Signal Magazine. 20 Sep 2006 <http://www.afcea.org/signal/articles/templates/SIGNAL_Article_Template.asp?articleid=78&zoneid=32>.
[19] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 7.
[20] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China, 7.

weaponry.[21] This focus combined with China's double digit growth in defense spending has significantly increased its military capability and ability to deter third-party intervention in the Taiwan Strait.

Evidence strongly points to the fact that China is focused on modernizing its military and advancing technology to combat the military power of the U.S. Navy Carrier Strike Group and to develop a capability to project power beyond its territorial seas. Although China's own military industry is still decades behind the U.S., they have been closing the gap in military power quickly with the purchase of advanced foreign weapon systems. Russian military sales have greatly contributed to China's military modernization and have been China's primary source of foreign weapons systems totaling an estimated $11 billion in the period of 2001-2005. China has purchased advanced Russian weapon systems including: Su-27 (Flanker) and Su-30 (Sukhoi) fighter aircraft; AA-12 (Adder) air-to-air missiles; SA-10 (Grumble), SA-15 (Gauntlet), and SA-20 (Gargoyle) surface-to-air missile systems; 3M-54E (SS-N-27B) ASCMs; KILO-class submarines; SOVREMENNYY II-class destroyers; IL-76 (Candid) transport aircraft, IL-78 tanker aircraft; and associated weapon systems.[22] Even with all this military modernization, it is still believed that China's internal military industry has many challenges to overcome before they can produce a maritime force capable of direct confrontation with that of the United States in the near future.

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[21] Fisher, Jr., Richard D. "The Impact of Foreign Weapons and Technology on the Modernization of China's People's Liberation Army."Jan 2004. USCC. 14 Sep 2006 <http://www.uscc.gov/researchpapers/2004/04fisher_report/04_01_01fisherreport.htm>. 3.

[22] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 22.

China and the Aircraft Carrier

One military modernization hurdle the PLA has yet to overcome is the development or purchase of an operational foreign aircraft carrier which many Chinese military leaders believe is critical for China to extend its military beyond the 'first island chain' to the 'second island chain.'[23] Analysts have posed that China cannot achieve sea control beyond the first island chain without an aircraft carrier. This is based on the premise that sea control can only be achieved through air superiority.[24] In 1997, Admiral Liu Haqing, while vice chairman of the Central Military Commission, stated aircraft carriers were "extremely necessary" for China to protect its sovereignty and maritime resources, "especially with regard to Taiwan and the South China Sea." [25]

The Chinese have demonstrated a great interest in big deck conventional aircraft carriers, comparable to the U.S. Nimitz class carriers, yet the Chinese have yet to build or buy an operational aircraft carrier.[26] Of the four aircraft carriers China has purchased, none are operational or predicted to ever be operational. The purchased aircraft carriers have certainly provided Chinese shipbuilders insight in producing their own carrier someday and are a constant reminder of an accomplishment they have yet to complete.

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[23] Containment against China involves two "island chains." The first stretches from Japan to the Liuqi Islands, then to Taiwan and the Philippines. The second island chain stretches from Japan's Ogasawara-gunto Islands to the Marianas. Reference enclosure 1.

[24] Ian Storey and You Ji, "China's Aircraft Carrier Ambitions: Seeking Truth from Rumors." Naval War College Review. (Winter 2004): 86.

[25] Storey, 78.

[26] Erickson, 15. China purchased the Australian carrier HMAS *Melbourne,* from which it may have learned engineering. The ex-Russian *Minsk,* acquired by front companies in 1998, is now the centerpiece of a Chinese "military education" amusement park in Shenzhen. The *Kiev,* arrived in Tianjin in 2000; it was subsequently renovated to attract tourists as the center of "China's largest national defense education base" and "the world's largest military theme park."

The problem according to experts is they currently lack the technical capability to produce and maintain the world's most complex war machines.[27]

Sea Control without Aircraft Carriers

Although the Chinese desire for aircraft carriers has yet to be realized, the question is do the Chinese need an aircraft carrier to project power beyond Taiwan and achieve sea control to their 'second island chain?' Most military analyses of China's maritime power suggest that without an aircraft carrier, China will remain a green-water navy.[28] These analyses should be considered. If China can develop a military force through land-based airborne early warning combined with a fleet of airborne refueling and fourth generation strike-fighter aircraft, do they really need an aircraft carrier to achieve air supremacy? What if this force is combined with sophisticated and advanced short-range ballistic missiles, submarines and mines? Will this prevent any force from challenging their superiority in the China Seas? Should China's ability to project power beyond its costal waters simply remain focused on whether China has an aircraft carrier or not? Incorrectly answering one of the above questions can lead to miscalculations in Chinese regional capabilities and miscalculating a maritime strategy to counter China's military in the China Seas.

China has shown significant interest in developing long range airborne detection and control aircraft; in fact, currently the Chinese have three different Airborne Early warning and detection platforms in development. The first is the KJ-200 airborne early warning (AEW) aircraft based on its new Y-8 'Balance Beam' is a turboprop transport aircraft fitted with a linear-shaped electronically steered phased-array radar. It is not

[27] Andrew S. Erickson and Andrew R. Wilson, "China's Aircraft Carrier Dilemma." Naval War College Review, (Winter 2006): 13.
[28] China's New Great Leap Forward - High Technology and Military Power in the Next Half-Century, 28.

clear if the 'Balance Beam' has similar capabilities to the Swedish Ericsson PS-890 ERIEYE radar, but due to its similar size and shape and the off-the-shelf technology market, it's believed it will have similar capabilities.[29] It would be able to detect air and possibly surface targets up to 280 miles. The capability of the phased array radar would also include a search mode or spot mode that could ground map and target acquisition over the horizon.[30] The second is the KongJing-2000 (KJ-2000) airborne warning and control system (AWACS) which is based on the Russian-made A-50 Mainstay with an indigenous electronically steered phased-array (ESA) radar and C3I system.[31] The KJ-2000 can transit a range of 2000km and remain on patrol at that range for up to nearly an hour and a half.[32] The latest airborne early warning platform introduced by the Chinese is a new version of the Y-8 introduced in 2005.[33] The new Y-8, unlike the other two new airborne early warning aircraft, has a rotating dome radar system similar to the U.S. E-2C Hawkeye.[34] These new developments are a clear sign that the Chinese are serious about developing a modern airborne early warning and control capability and one that can control far beyond their costal waters.

The People's Liberation Army Air Force (PLAAF) modernization with the purchase of over 100 SU-30MKK and 24 SU-30MKK2[35] has also significantly expanded

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[29] Y-8 'Balance Beam' (KJ-200) Airborne Early Warning Aircraft. 08 Jun2006. Chinese Defense Today. 27 Sep 2006 <http://www.sinodefence.com/airforce/specialaircraft/y8balancebeam.asp>.
[30] Ibid.
[31] KJ-2000 Airborne Warning & Control System . 30 Dec 05. Chinese Defense Today. 27 Sep 2006 <http://www.sinodefence.com/airforce/specialaircraft/kj2000.asp>.
[32] Ibid.
[33] Y-8 Airborne Early Warning Aircraft. 13 May 2006. Chinese Defense Today. 27 Sep 2006 <http://www.sinodefence.com/airforce/specialaircraft/y8aew.asp>.
[34] Ibid.
[35] The SU-30MKK2 is the Maritime variant of the SU-30MKK which is tailored for the PLA Naval Air Force (PLANAF) with enhanced anti-ship strike capability.

their maritime influence.[36] Armed with a sophisticated onboard radar and electronic countermeasures suite, the SU-30MKK is capable of carrying advanced air-to-air and air-to-ground weapons. The SU-30MKK poses a significant threat to current fourth generation Western aircraft and is capable of anti-ship attack from approximately 50km with its KH-59 air-to-surface missile.[37] The SU-30MKK2 is capable of carrying KH-31 which is a supersonic anti-ship weapon with a standoff range of 110km.[38] The most significant increased capability the SU-30MKK / SU-30MKK2 provides to the PLAAF and PLANAF is the long range air defense or anti-surface capability. Non-refueled the SU-30MKK has a combat radius of 1500km. With two airborne refuelings, the SU-30MKK can fly approximately 7000km.[39]

Recently the Chinese have stepped up their pursuit of an air-to-air refueling capability. In January of 2005 the Chinese started incorporating air-to-air refueling in one of their annual exercises.[40] This tactical capability breakthrough provides the Chinese with a strategic long range air defense and air interdiction capability. Currently, the only tanker in the PLAAF inventory is the indigenous H-6. However, in 2005 China signed a contract to acquire 8 IL-78/MIDAS air refueling aircraft from Russia.[41] The IL-78 acquisition is important considering the H-6 is reported to be incompatible with the SU-30MKK/SU-30MKK2 aircraft.

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[36] SU-30MKK Multirole Fighter Aircraft. 01 Jun 2006. China Defense Today. 27 Sep 2006 <http://www.sinodefence.com/airforce/fighter/su30.asp>.
[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] Ningbin, Yan and Tan Jie. PLA Air Force builds up armada airborne refueling capability. 25 Jan 2006. PLA Daily Online. 27 Sep 2006 <http://english.pladaily.com.cn/site2/militarydatabase/2006-01/25/content_395219.htm>.
[41] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 6.

By developing the airborne tanker capability to support the Chinese front line fighters combined with airborne early warning and control, China is bridging the gap in air dominance in the maritime arena that has the potential of air supremacy to the 'second island chain.'

The challenge for the Chinese in the near future is to produce or purchase sufficient numbers of fourth generation fighters, airborne early warning aircraft and airborne refueling aircraft required to achieve air supremacy out to the 'second island chain.' Having the platforms capable of getting aircraft to the edges of the 'second island chain' to conduct interdiction or offensive/defensive counter air missions is one thing, but having the sufficient numbers to achieve strategic goals when opposed by a carrier strike group enemy requires significantly more forces. This is primarily based on the need to protect the early warning and aerial refueling aircraft. Employing these aircraft to the edge of the 'second island chain' would require the capability to protect the early warning aircraft and the airborne tankers along the lines of operation. Unlike green water operations under the umbrella of the Chinese land-based enemy air defenses provided by the SA-10/SA-20, once the PLAAF / PLANAF extend their operations beyond this umbrella of air defense, the non-fighter aircraft become vulnerable to attack from enemy fighters. The lines of operation become vulnerable and enemy fighters would be capable of intercepting and destroying the lines of operation supporting the fighter and interdiction operations.

The further the Chinese attempt to expand their area of influence, the more fighter/escort protection will be required. Without fighter aircraft to protect and escort air-refueling and surveillance / control aircraft, these support aircraft would be vulnerable

targets for an adversary while operating in the exterior lines of operation. For example, if the Chinese desired to perform a strike operation composed of a small strike force to the central Philippine Islands with a division[42] of SU-30MKK2 aircraft, the supporting aircraft requirements would have to be similar to the following force size: 2 IL-78 tankers, 3 AWACS aircraft and 12 – 16 additional SU-30MKKs. At minimum, two IL-78s would be required to support the strike aircraft and the supporting fighter escorts. Due to the long range of the strike, a minimum of three AWACS aircraft would be required to maintain command and control over lines of operation. Finally, due to required placement of AWACS and airborne refuelers to support the mission, somewhere between 12 and 16 fighter/escorts would be a minimum to protect the high value AWACS and tankers along the lines of operation. If a similar strike operation were to be opposed by an small enemy air force of 12 enemy fighters, the division of strikers attacking the Philippine islands would have to be escorted by an additional two divisions of fighter escorts. This would significantly increase the number of supporting air refueling aircraft required to complete the mission. Similarly, if a single U.S. carrier strike group was opposing the strike and the Chinese desired to provide their strike with a one-to-one ratio of Chinese fighters to U.S. fighters, the operation would require the entire inventory of Chinese SU-30MKK fighters to accomplish the mission. This only illustrates a sample force structure required to conduct a single strike. To maintain presence and control of an area would require a much larger force to span the long line of operations continually.

Evidence suggests the Chinese realize that operations beyond their air defense umbrella when opposed by a carrier strike group force would place China in a

[42] Division is comprised of four aircraft. This is the basic element size for tactical strike operations.

disadvantaged position. According to the U.S. Annual DOD report, China recognizes its deficiencies and has placed "near-term emphasis on asymmetric programs and systems to leverage China's advantages while exploiting the perceived vulnerabilities of potential opponents."[43]

To deal with this deficiency, the Chinese appear to be developing and emphasizing sea denial to prevent a carrier strike group from interfering with their ability to control the region. Similar to their need for a way to deny carrier strike groups from interfering in a Taiwan Strait issue, the Chinese also realized the need to deny the carrier strike group from interfering with their interest in the China Seas.

By late 2005 China had deployed approximately 700 short-range ballistic missiles (SRBM) in garrison across the straits of Taiwan and has been increasing the number by approximately 100 per year.[44] Although the first generation SRBMs don't have a true "precision strike" capability, later generations will have a greater range and more accurate targeting system.[45] With the development of their acquisition, tracking and targeting capacity their ability to deny larger areas of the China Seas will also grow. China is not only working to increases its C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) through its development of its airborne early warning aircraft but is also developing their space based C4ISR.[46] These developments will greatly increase their ability to detect, track and target carrier strike groups but will also help resolve the issue of maintaining persistent C4ISR

[43] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 24.
[44] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 29.
[45] Ibid.
[46] Department of Defense, Annual Report to Congress: Military Power of the People's Republic of China. 31.

coverage. As the Chinese develop a space based C4ISR capability, the ability to integrate it with their airborne early warning aircraft and more sophisticated and accurate SRBMs, their ability to deny access to the China Seas will increase. Additionally, if they can further integrate their submarine and mine warfare capabilities into an anti-access strategy, the problem for an adversary becomes even more complicated.

The ability for the Chinese to deny access of a carrier strike group into the China Seas does in itself not provide sea control. However, if the Chinese can deny carrier strike groups access into the region, their ability to control the sea becomes much easier. No longer would their long range bombers or their multipurpose SU-30MKKs be challenged by an air force with the capacity of deterring them from projecting air power to the 'second island chain.'

Conclusion

Although in the near term it is very unlikely the Chinese will be able to develop a traditional blue water navy with modern aircraft carriers capable of combating the U.S. Navy on the open ocean, they have and continue to develop the ability to deny access to the region and will likely continue to increase the range at which sea-denial can be accomplished. This inability to produce carriers should not indicate the Chinese do not intend to or will not soon have the capacity to project power beyond their coastal waters.

In light of their technological deficiencies to produce carriers, the Chinese appear to be taking an asymmetric approach to achieve the same ends through alternative means. Recent modernization and current trends indicate China's military is developing the potential of extending their control of the China Seas to the 'second island chain' even without the use of an aircraft carrier. As China continues to modernize their military,

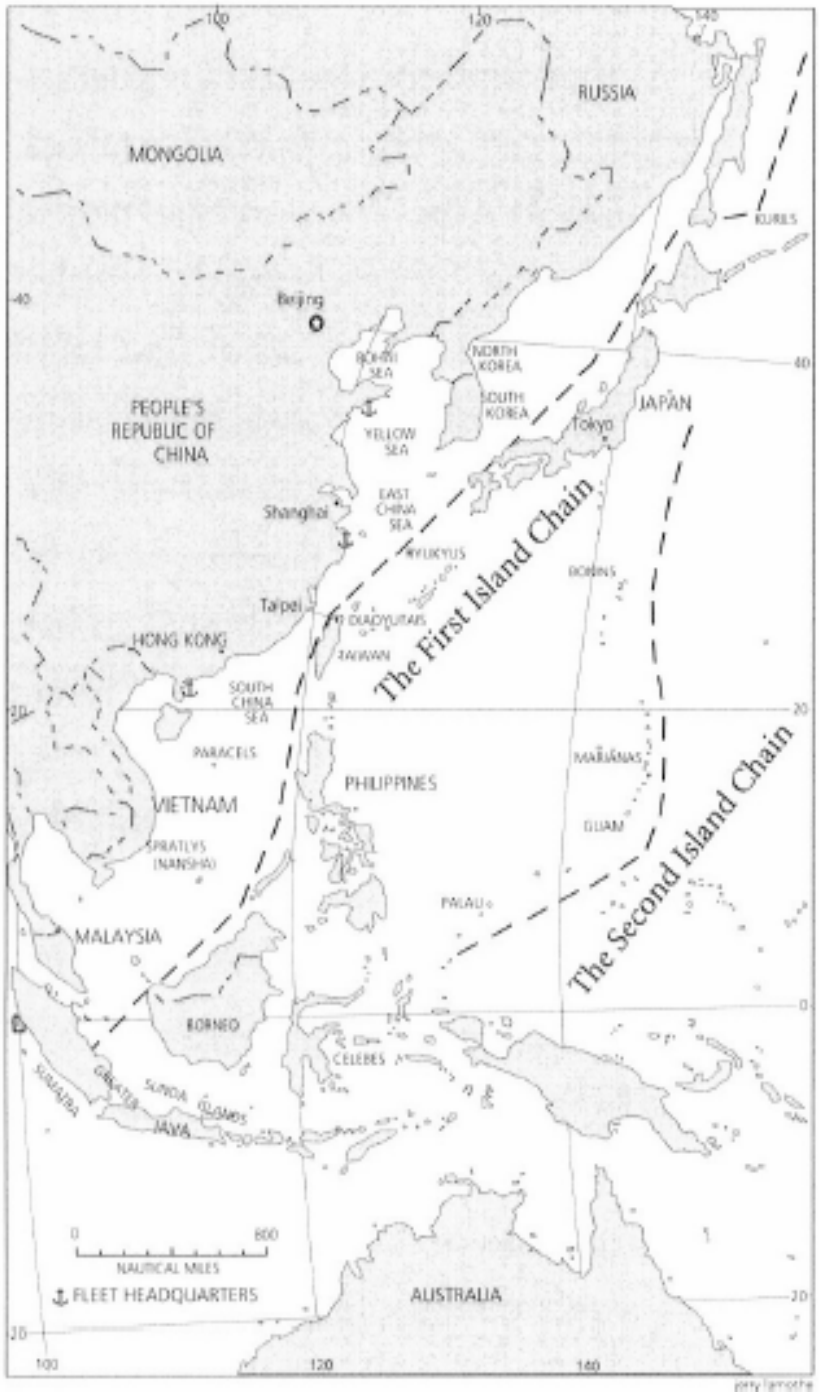
they will have an increased ability to deny access to the region and an increased ability to control the region. Additionally, through advancements in C4ISR combined with aerial refueling, sophisticated weapon systems of their newest strike-fighter aircraft and advanced SRBMs, the Chinese will have a greater ability to project power and control the sea to the 'second island chain.' The combination of their increased C4ISR through their airborne early warning aircraft and developing space-based C4ISR systems with their SRBM development will provide a significant challenge to any naval force that enters the region.

The Chinese still have some significant hurdles to overcome before achieving this capability of projecting power beyond their coastal waters through long-range aerial refueling strikes. First, the Chinese will have to continue to modernize their C4ISR capabilities including developments in space-based C4ISR systems. Secondly, the Chinese will have to continue to develop integrated detection, tracking and targeting of precision SRBM that will deter an enemy carrier strike group from interfering with the Chinese as they protect and secure their interest in the region of the China Seas. Lastly, they will need to continue to develop their airborne refueling capacity in order to project power beyond their coastal waters.

As the U.S. is in the mist of developing a new maritime strategy, strategists need to ensure that they do not overlook the advancing capabilities of the Chinese military. The U.S. needs to recognize the Chinese are modernizing their military forces and obtaining the pieces to achieve power projection to the 'second island chain,' albeit through alternative means. The driving force behind U.S. strategy should be to build a force able to combat the Chinese increased capabilities vice focusing on the lack of

Chinese aircraft carriers. It would be a strategic error to overlook these new capabilities if the U.S. desires continued influence in the region.

Figure 1. First and Second Island Chain



Bibliography

Ackerman, Robert K. “Chinese military modernization aims for regional projection.” *Signal- AFCEA's International Journal.* Oct 2003. Signal Magazine. http://www.afcea.org/signal/articles/templates/SIGNAL_Article_Template.asp?articleid=78&zoneid=32. (accessed 20 Sep 2006)

Buszynski, Leszek. "ASEAN, the Declaration on Conduct, and the South China Sea." *Contemporary Southeast Asia.* 25, No. 3 (Dec 2003): 343-62.

China’s New Great Leap Forward - High Technology and Military Power in the Next Half-Century. Cicero, IN: Hudson Institute, 2005.

Cole, Bernard D., “China’s Maritime Strategy.” *Hampton Roads International Security Quarterly.* (June 2002): 136-184.

Department of Defense. *Annual Report to Congress: Military Power of the People’s Republic of China.* Washington DC: Department of Defense, 2006.

Erickson, Andrew S. and Andrew R. Wilson, “China’s Aircraft Carrier Dilemma.” *Naval War College Review* 59, no. 4 (Winter 2006): 7-39.

Fisher, Jr., Richard D. "The Impact of Foreign Weapons and Technology on the Modernization of China’s People’s Liberation Army.”Jan 2004. USCC. http://www.uscc.gov/researchpapers/2004/04fisher_report/04_01_01fisherreport.htm (accessed 4 Sep 2006).

“KJ-2000 Airborne Warning & Control System.” 30 Dec 05. Chinese Defense Today. http://www.sinodefence.com/airforce/specialaircraft/kj2000.asp. (accessed 27 Sep 2006).

Ningbin, Yan and Tan Jie. “PLA Air Force builds up armada airborne refueling capability.” 25 Jan 2006. *PLA Daily Online*. http://english.pladaily.com.cn/site2/militarydatabase/2006-01/25/content_395219.htm. (accessed 27 Sep 2006).

Pollack, Jonathan D. “China’s Taiwan Strategy: A Point of No Return?” *China Journal*, 36 (July 1996): 111-116.

Ross, Robert S. "The 1995-1996 Taiwan Strait Confrontations: Coercion, Credibility, and the Use of Force." *International Security*,25 no. 2 (Fall 2000): http://www.people.fas.harvard.edu/~johnston/GOV2880/ross3.pdf#search=%22china%201996%20taiwan%20strait%22 (accessed 30 Aug 2006).

Bibliography

Scobell, Andrew. "Show of Force: The PLA and the 1995-1996 Taiwan Strait Crisis." Jan 1999. http://aparc.stanford.edu/publications/show_of_force_the_pla_and_the_1995-1996_taiwan_strait_crisis/. (accessed 03 Oct 2006).

Storey, Ian and You Ji, "China's Aircraft Carrier Ambitions: Seeking Truth from Rumors." *Naval War College Review* 57, no. 1 (Winter 2004): 77-93.

"SU-30MKK Multirole Fighter Aircraft." 01 Jun 2006. China Defense Today. http://www.sinodefence.com/airforce/fighter/su30.asp. (accessed 27 Sep 2006).

"Taiwan Strait: 21 Jul 1995 to 23 March 1996." 27 Apr 2005. GlobalSecurity.org. http://www.globalsecurity.org/military/ops/taiwan_strait.htm/ (accessed 27 Sep 2006).

"Y-8 'Balance Beam' (KJ-200) Airborne Early Warning Aircraft." 08 Jun2006. Chinese Defense Today. http://www.sinodefence.com/airforce/specialaircraft/y8balancebeam.asp. (accessed 27 Sep 2006).